Multi-Unit Housing (MUH)
End Commercial Tobacco Campaign Survey
Wave 1 Data Analysis Guidance
Issued: April 2022

Overall Guidelines

1) The Local Lead Agency (LLA) is responsible for the dataset and must keep a record of anyone requesting the data and with whom the data are shared (see the sample Data Request Tracking Form or contact the Tobacco Control Evaluation Center [TCEC] for assistance).
2) Local partner programs or others interested in obtaining the MUH End Commercial Tobacco Campaign (ECTC) Survey dataset need to contact the LLA to request the data in writing and sign a form agreeing to data sharing and use guidelines.
   a. See sample Data Request Form or contact TCEC for assistance.
3) The following resources will be provided by TCEC along with the dataset to assist with LLA-level analysis:
   a. Codebook ("MUH Codebook" tab in the Excel file of each dataset) and the online survey
   b. This data analysis guidance document
   c. Data cleaning documentation ("Data Cleaning Summary" tab in the Excel file of each dataset)
   d. Training manual for question wording, explanations for each question, and online survey instructions saved as a PDF
4) Contact TCEC at tobaccoeval@ucdavis.edu with questions about the End Commercial Tobacco Campaign data analysis and reporting.

Sampling and Weights

1) **Sampling method**:
   a. LLAs were instructed to use a sampling frame list provided by the California Tobacco Control Program (CTCP) to conduct a purposive sample of MUH properties within each jurisdiction. See the TCEC Website for the complete sampling plan.
2) **Weights:**
   a. Weights are neither needed nor included for LLA-level analysis of MUH data due to the purposive sampling design. LLAs should be aware that relying on unweighted data changes the interpretation and representativeness of results.
   b. Confidence intervals should be generated due to the sample plan (i.e., purposive sampling) and potential measurement error (e.g., data collector accidentally recording the wrong data). These can increase

variability of the estimates and introduce bias. In addition, the longitudinal nature of ECTC requires confidence intervals.

       i. In **Excel**, **SPSS**, or **SAS**: Use a higher 99% confidence level and specify in report or footnote.

SPSS Example:

```
ONEWAY var1 BY var2
   /STATISTICS DESCRIPTIVES
   /MISSING ANALYSIS
   /CRITERIA=CILEVEL(0.99).
```

SAS Example:

```
PROC SURVEYFREQ data = <dataset>;
table var1*var2 / row cl alpha=0.01;
RUN;
```

Data Analysis and Reporting

1) LLAs should consider their target audience and how they want to use the results of their data when developing the data analysis plan and framing any reports of results. Different variables, different sub-analyses, and different language may be appropriate for different audiences.

    a. Sub-groups of MUH may be combined and analyzed to assess MUH with similar demographic or geographic characteristics (e.g., neighborhood socioeconomic status, urban/suburban/rural location) as deemed useful by the LLA.

    b. Use the example reporting language provided in this document to frame the presentation of findings.

2) TCEC will provide guidance on analyzing data using Excel. Example SAS code for recoding variables and answering some evaluation questions are presented in Appendices 1 and 2. Assistance with other statistical programs is available upon request.

3) LLA-level analyses will typically aim to assess Tobacco Product Waste (TPW) and Observed Active Smoking (OAS) on average across all jurisdictions and for various jurisdictions and MUH community types (e.g., duplex, triplex).

    a. Use the codebook, training manual, and this data analysis guidance document to understand which questions to use for results that may be of interest. Examples of key questions for analysis are included in this document, but LLAs may decide to analyze other variables as well.

4) All data must be reported in aggregate. Do NOT report individual MUH results, names, or addresses. E.g., do NOT display individual MUH results on a map. Do NOT report results for areas with fewer than 5 MUHs.

Variables

1) Variable names are listed in the Codebook ("MUH Codebook" tab in the Excel file of each dataset)

2) **Predictor Variables:**
   a. <u>Jurisdiction (Community) and MUH Community Type (Parcel)</u>
      i. Categorical Variables
      ii. LLAs should conduct data checks on the Jurisdiction (Community) to ensure that the variable information is correct.
3) **Outcome Variables:**
   a. The main outcome variables to include in the descriptive analysis are Tobacco Product Waste (TPW) and Observed Active Smoking (OAS). LLAs may also be interested in analyzing No Smoking or Vaping Signage.
   b. Measures are available for each MUH amenity Type (e.g., pool, walkway, stairs, playground, etc.).
      i. LLAs can assess these measures separately for each amenity or they can compute an average across all amenities (see Appendix 1).
         a. Numeric outcome measures (e.g., TPW) might be skewed due to outliers. LLAs should conduct data checks of skew and/or kurtosis for the presence of outliers. If skew/kurtosis is high (±2), it is suggested that median values (instead of means) are reported.
      ii. LLAs may wish to recode these variables into a categorical variable prior to analysis (see Appendix 1).
   c. <u>Tobacco Product Waste (TPW):</u>
      i. *Survey Question*: How many pieces of TPW are in the observation area?
      ii. *Numeric Measure*: Open-ended response scale assessing count (ranging from 0 to 99)
      iii. *Categorical Recode*: Recode the numeric measure of TPW to binary/categorical variable where:
         a. 0 = 0: *no TPW*
         b. 1 thru 99= 1: *yes, TPW observed*
   d. <u>Observed Active Smoking (OAS):</u>
      i. *Survey Question*: During your observation, how many times did you see or smell tobacco or marijuana smoke or vapor?
      ii. *Numeric Measure*: Response options ranging from 0 to 5 or more
      iii. *Categorical Recode*: Recode the numeric measure of OAS to binary/categorical variable where:
         a. 0 = 0: *no Observed Active Smoking*
         b. 1 thru 5 = 1: *yes, Observed Active Smoking*
   e. <u>"No Smoking/No Vaping" Signage</u>:
      i. *Survey Question*: Is there a "No smoking/No vaping" sign nearby?
      ii. *Categorical Measure*: Response options were yes/no.

Interpretation and Write-Up Guidance

1) For each analysis, present an estimate (estimated average or estimated percentage) and corresponding confidence interval.
2) Results of analyses that assess TPW should be reported per 100 square feet.
3) If the LLA is assessing TPW by jurisdiction then 99% confidence intervals should be calculated, and data can be reported as:
   a. **In 2022 across MUHs surveyed in X Jurisdiction, approximately 4.0 (99% CI: 3.9, 5.1) pieces of tobacco product waste per 100 square feet were observed.**
4) If the LLA is assessing the percentage of MUHs that had any TPW (> 0) across all jurisdictions, 99% confidence intervals should be calculated, and data can be reported as:
   a. **In 2022 across MUHs surveyed in X Jurisdiction, tobacco product wase was observed in approximately 30.0% (99% CI: 29.1%, 30.9%) of MUHs.**

Example Evaluation Questions with Data Analysis Suggestions

Predictor Variable(s)	Outcome Variable(s)	Outcome Variable Type	Reported Estimates
What is the average amount of TPW per jurisdiction?			
Jurisdiction (Community)	TPW (average across all amenities, e.g., mean of MASPTPW, MAWWTPW, MAOSTPW, etc.)[a]	Numeric	Average/mean[b] and confidence interval of TPW for each jurisdiction
What percentage of MUHs had any TPW per jurisdiction?			
Jurisdiction (Community)	TPW (average across all amenities, e.g., mean of MASPTPW, MAWWTPW, MAOSTPW, etc.) Recoded as No/Yes TPW (TPW_cat)[a]	Categorical	Percentage (%) and confidence interval estimate of MUHs with TPW (1 or Yes TPW) for each separate jurisdiction
What was the average amount of TPW at MUH pools by jurisdiction?			
Jurisdiction (Community)	TPW at the Pool Amenity (MASPTPW)	Numeric	Average/mean[b] and confidence interval of TPW at pools across all MUHs for each separate jurisdiction

Predictor Variable(s)	Outcome Variable(s)	Outcome Variable Type	Reported Estimates
What percentage of MUHs had any Observed Active Smoking by jurisdiction?			
Jurisdiction (Community)	Observed Active Smoking (average across all amenities, e.g., mean of MASPM, MAWWM, MAOSM, etc.) Recoded as No/Yes OAS (OAS_cat)[a]	Categorical	Percentage (%) and confidence interval estimate of MUHs with any Observed Active Smoking (1 or Yes OAS) for each separate jurisdiction
Which MUH amenities had the most Observed Active Smoking on average by jurisdiction?			
Jurisdiction (Community)	Observed Active Smoking at each separate amenity (MASPM, MAWWM, MAOSM, MAPGM, MAMBM, MAOAM, MAPLM)[a]	Numeric	Average/mean[b] and confidence interval of Observed Active Smoking for each MUH amenity type for each separate jurisdiction
What percentage of MUHs had any No Smoking or Vaping Signage by jurisdiction?			
Jurisdiction (Community)	No Smoking or Vaping Signage (average across all amenities, e.g., mean of MASPS, MAWWS, MAOSS, etc.) Recoded as No/Yes Signage (Signage_cat)[a]	Categorical	Percentage (%) and confidence interval estimate of MUHs with any No Smoking or Vaping Signage (1 or Yes Signage) for each separate jurisdiction
Which MUH amenities were most likely to have No Smoking or Vaping Signage by jurisdiction?			
Jurisdiction (Community)	No Smoking or Vaping Signage at each separate amenity (MASPS, MAWWS, MAOSS, MAPGS, MAMBS, MAOAS, MAPLS) Recoded as No/Yes Signage[a]	Categorical	Percentage (%) and confidence interval estimate of No Smoking or Vaping Signage (1 or Yes Signage) for each amenity type and for each separate jurisdiction

Note. Example dataset variable names are listed in blue.
a. See Appendix 1.
b. If skew/kurtosis is high (±2), median values (instead of mean values) may be reported.

Appendix 1

Detailed Examples of SAS Variable Re-Coding

Tobacco Product Waste (TPW):

Compute mean/average score of TPW across all amenities:

```
TPW=mean(MASPTPW, MAWWTPW, MAOSTPW, MAPGTPW, MAMBTPW, MAOATPW, MAPLTPW);
RUN;
```

Categorical Recode:

Option 1:

```
if TPW=0 then TPW_cat='No TPW';
else if TPW in (1:99) then TPW_cat='Yes TPW';
```

Option 2:

```
if TPW=0 then TPW_cat=0;
else if TPW in (1:99) then TPW_cat=1;
proc format;
value TPWformat
    0 = ' 0: No TPW '
    1 = ' 1: Yes TPW ';
```

Observed Active Smoking (OAS):

Compute mean/average score of OAS across all amenities:

```
OAS=mean(MASPM, MAWWM, MAOSM, MAPGM, MAMBM, MAOAM, MAPLM);
RUN;
```

Categorical Recode:

Option 1:

```
if OAS=0 then OAS_cat='No OAS';
else if OAS in (1:5) then OAS_cat='Yes OAS';
```

Option 2:

```
if OAS=0 then OAS_cat=0;
else if OAS in (1:5) then OAS_cat=1;
proc format;
value OASformat
    0 = ' 0: No OAS '
    1 = ' 1: Yes OAS ';
```

No Smoking or Vaping Signage:

Compute mean/average score of Signage across all amenities:

```
Signage=mean(MASPS, MAWWS, MAOSS, MAPGS, MAMBS, MAOAS, MAPLS);
RUN;
```

Categorical Recode:

Option 1:

```
if Signage =0 then Signage_cat='No Signage';
else if Signage in (1:7) then Signage_cat='Yes Signage';
```

Option 2:

```
if Signage =0 then Signage_cat=0;
else if Signage in (1:7) then Signage_cat=1;
proc format;
value Signageformat
    0 = ' 0: No Signage '
    1 = ' 1: Yes Signage ';
```

Appendix 2

Detailed Examples of SAS Analysis Code for Obtaining Overall Estimate and Corresponding Confidence Interval

Example 1: <u>Unweighted</u> estimated average/mean value and corresponding confidence interval for <u>numeric</u> outcome measures
Use: PROC SURVEYMEANS
SAS Code: TPW across all MUHs:

```
DATA <dataset>; set <original dataset>;
TPW=mean(MASPTPW, MAWWTPW, MAOSTPW, MAPGTPW, MAMBTPW,
MAOATPW, MAPLTPW);
RUN;
PROC SURVEYMEANS data = <dataset> alpha=0.01 plots=none;
var TPW;
RUN;
```

SAS Results Output:

Statistics					
Variable	N	Mean	Std Error of Mean	99% CL for Mean	
TPW	46	3.112319	0.232207	2.48777965	3.73685803

Interpretation:
In 2022 across MUHs surveyed in Jurisdictions X, an estimated average of 3.1 (99% CI: 2.5, 3.7) pieces of tobacco product waste per 100 square feet was observed.

Example 2: <u>Unweighted</u> estimated percentage and corresponding confidence interval for <u>categorical</u> outcome measures
Use: PROC SURVEYFREQ
SAS Code: Observed Active Smoking (OAS) at the Pool Area Across All MUHs:

```
DATA <dataset>; set <original dataset>;
if MASPM=0 then MASPM_cat=0;
else if MASPM in (1:5) then MASPM_cat=1;
RUN;
value MASPMformat
    0 = ' 0: No OAS '
    1 = ' 1: Yes OAS ';
RUN;
PROC SURVEYFREQ data = <dataset>;
table MASPM_cat / row cl alpha=0.01;
format MASPM_cat PAPGOformat.;
RUN;
```

SAS Results Output:

Table of MASPM_cat					
MASPM_cat	Frequency	Percent	Std Err of Percent	99% Confidence Limits for Percent	
0: No OAS	14	60.8696	10.4051	31.5401	90.1990
1: Yes OAS	9	39.1304	10.4051	9.8010	68.4599
Total	23	100.0000			
Frequency Missing = 24					

Interpretation:

In 2022 across MUHs surveyed in Jurisdiction A, active smoking was observed in approximately 39.1% (95% CI: 9.8%, 68.5%) of pool areas.

Example 3: <u>Unweighted</u> estimated average/mean value and corresponding confidence interval for <u>numeric</u> outcome measures for multiple jurisdictions within the same county.

Use: PROC SURVEYMEANS

SAS Code: TPW by Jurisdiction Across all MUH Areas:

```
DATA <dataset>; set <original dataset>;
TPW=mean(MASPTPW, MAWWTPW, MAOSTPW, MAPGTPW, MAMBTPW,
MAOATPW, MAPLTPW);
RUN;
PROC SURVEYMEANS data = <dataset name> alpha=0.01
plots=none;
domain Jurisdiction;
var TPW;
RUN;
```

SAS Results Output:

Statistics for Jurisdiction Domains						
Jurisdiction	Variable	N	Mean	Std Error of Mean	99% CL for Mean	
1	TPW	25	4.626667	0.247524	3.96093102	5.29240232
2	TPW	21	3.126984	0.379669	2.10583237	4.14813588

Interpretation:

In 2022 across all MUHs surveyed in Jurisdiction 1 in X county, an estimated average of 4.6 (99% CI: 4.0, 5.3) pieces of tobacco product waste per 100 square feet was observed. In Jurisdiction 2 in X county across all MUHs surveyed, an estimated average of 3.1 (99% CI: 2.1, 4.1) pieces of tobacco product waste per 100 square feet was observed.